

JPRS 82884

16 February 1983

# Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 178



FOREIGN BROADCAST INFORMATION SERVICE

#### NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [ ] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

#### PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

16 February 1983

# WORLDWIDE REPORT

## NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 178

### CONTENTS

#### ASIA

#### AUSTRALIA

South Australia's Premier Comments on Uranium Issue (Various sources, various dates) .....	1
Visit to Roxby Downs Remarks to Enrichment Group, by John Stanton	
NT Weighs Moving Untreated Uranium Ore for Milling (THE WEST AUSTRALIAN, 6 Dec 82) .....	4
Queensland ALP Opposed to Uranium Enrichment Plant (THE COURIER-MAIL, 6 Dec 82) .....	5
Nuclear Fallout Shelter Study: 'Few Would Survive' (Danielle Robinson; THE AUSTRALIAN, 7 Dec 82) .....	6
Defense Minister Announces Relaxed Rules for Nuclear Ships (William Pinwill; THE AUSTRALIAN, 9 Dec 82) .....	7

#### EAST EUROPE

#### CZECHOSLOVAKIA

Problems Plague Nuclear Power Plant Construction (PRAVDA, 8 Jan 83) .....	9
--	---

#### LATIN AMERICA

#### ARGENTINA

Uranium Reserves Sufficient to Weather Further Budget Cuts (Martin F. Yriart; ENERGEIA, Dec 82) .....	10
--	----

## BOLIVIA

Nuclear Commission 1983 Activities Viewed (PRESENCIA, 23 Dec 82) .....	13
---	----

## BRAZIL

Reportage on Federalizing of Nuclear Research Activities (O ESTADO DE SAO PAULO, 8 Jan 83) .....	15
Nogueira Batista Resigns as Nuclebras President (Radio Guaiba, 1 Feb 82) .....	19
Angra Nuclear Plant Construction Pushed Back (JORNAL DO BRASIL, 11 Jan 83) .....	20
Builders of Three Nuclear Powerplants Selected (O ESTADO DE SAO PAULO, 16 Dec 82) .....	21
Investment Cut To Delay Nuclear Plant Projects in 1983 (O ESTADOC DE SAO PAULO, 1 Jan 83) .....	23
Brazil Not Affected by Control of Nuclear Exports (O GLOBO, 4 Jan 83) .....	25
Ship With Uranium Concentrates From Argentina Leaves Santos (O GLOBO, 4 Jan 83) .....	26

## NEAR EAST/SOUTH ASIA

### ISRAEL

MA'ARIV Questions Nuclear Power Project (Editorial; MA'ARIV, 12 Dec 82) .....	27
Feasibility of Nuclear Power Debated (Avraham Peleg; MA'ARIV, 19 Dec 82) .....	29
Independent Nuclear Power Development Said Unlikely (Mikhael Garti; HA'ARETZ, 22 Dec 82) .....	32
Briefs Proposal for Thorium Reactor .....	35

### PAKISTAN

Mahbubul Haq Clarifies Views on Nuclear Energy (THE MUSLIM, 2 Jan 83) .....	36
Bio-Technology Institute To Be Set Up (DAWN, 10 Jan 83) .....	37

SUB-SAHARAN AFRICA

SOUTH AFRICA

Briefs

Nuclear Safety

38

WEST EUROPE

INTERNATIONAL AFFAIRS

Sweden Loads First Spent Nuclear Fuel for Shipment to France

(Bo Engzell); DAGENS NYHETER, 23 Jan 83).....

39

Controversy on Ship's Safety, by Bo Engzell

Denmark Agrees To Allow Passage

AUSTRIA

IAEA's Blix on Safeguards, U.S. Participation, Finances

(Hans Blix interview, NRC HANDELSBLAD, 13 Jan 83) .....

43

SOUTH AUSTRALIA'S PREMIER COMMENTS ON URANIUM ISSUE

Visit to Roxby Downs

Melbourne THE AGE in English 29 Nov 82 p 19

[Text]

Uranium mining had no "blank cheque" to go ahead in South Australia, the premier, Mr Bannon, said after a visit to the Roxby Downs project yesterday.

Mr Bannon said that, while the Roxby Downs copper, uranium and other minerals mine at Olympic Dam had been guaranteed the support of a Labor Government, this did not mean other uranium projects would automatically gain approval.

He said his Government supported Roxby Downs because it had been secured by the indenture agreement passed by State Parliament and because the combined minerals nature of the project, with uranium being mined alongside copper and other minerals, meant it could be endorsed under the ALP's Federal policy on uranium.

Asked whether this meant uranium-only projects, including the fledgling Honeymoon mine, would have to be judged individually by the Government before approval was given, he said:

"Our policy in that area has not changed. There is no blank cheque for uranium mining. Uranium mining is OK at Roxby Downs as part of a general mining process.

"I am committed to it as Olympic Dam, which is a copper, ura-

nium and other minerals mine.

"Other projects have to be looked at as they come up."

The joint venturers have spent \$30 million on the feasibility study to date and, following the passing of the indenture agreement in June, have begun spending another \$50 million to complete the feasibility study.

A decision is expected to be taken in 1984 on the viability of running the mine as a full-scale commercial project.

Mr Bannon met senior representatives of the joint venturers at the mining site, including the chairman of WMC, Sir Arvi Parbo, and British representatives of BP.

He said he was surprised at the development which had taken place since his last tour of the mine in 1980, when work had only just begun on sinking the main mine shaft.

"I knew a lot of money had been spent but I am surprised at the substance of the workings underground," he said. "It certainly indicates they (the joint venturers) are serious about the feasibility stage and keen to get on with it.

"It's not just a uranium mine. It's a project which I believe in the interests of SA should go ahead."

CSO: 5100/7514

Remarks to Enrichment Group

Canberra THE AUSTRALIAN in English 30 Nov 82 p 28

[Article by John Stanton]

[Text] THE Premier of South Australia, Mr Bannon, has all but ruled out the possibility of a uranium enrichment industry being established in the State.

Mr Bannon and the State Minister for Mines and Energy, Mr Payne, met representatives of the Uranium Enrichment Group of Australia (UEGA), the Urenco Centec enrichment technology consortium and the State's Uranium Enrichment Committee in Adelaide yesterday.

He said after the meeting that the Government would reject a finalised proposal for an enrichment plant if it were offered now.

"In South Australia we don't want to get involved in that sort of an operation and be locked into the nuclear fuel cycle in that way," Mr Bannon said.

The Government would, however, be willing to look at the long-term prospects of an enrichment development industry because of the possibility of a further softening of the ALP policy on uranium in the next few years.

The former Premier, Mr Tonkin, had strongly put the State's case to have the right to establish the enrichment industry since the release of a Federal government-sponsored UEGA report last month which listed parts of South Australia and Queensland as favored sites for the plant.

The report also advocated the Urenco-Centec Dutch/British/German consortium's centrifuge technology for use in enrichment in this country.

Mr Bannon accused the former Liberal Government of creating an impression before the November 6 State election that the proposal was further advanced than was the case.

Yesterday's meeting had shown that an enrichment plant in this country was "a long, long way down the track, if at all".

"The previous government totally misled the public on the timing and economic viability of an enrichment plant, and the location of prospective sites," Mr Bannon said.

The earliest an enrichment plant could expect to come on-stream in South Australia, or any other State, would be 1992.

"They (UEGA) will not even be close to making a decision on whether a feasibility study should be conducted until sometime in 1984," he said.

The Premier described as "political grandstanding" the announcement by the former government that it was laying groundwork for an indenture bill to cover the establishment of an enrichment industry.

"I was told this morning that an indenture was unnecessary because there was no firm proposal for a plant and no decision from the Federal Government," he said.

The Tonkin government had also been misleading on the subject of what sites were being considered for the plant.

The former Premier had frequently referred to Port Pirie, in the mid-north of the State, as a likely site.

"It is quite clear that sites within the Adelaide metropolitan area are being looked at, without any prior consultation with residents, and that a metropolitan rather than a regional location such as Port Pirie is favored," Mr Bannon said.

He would be pressing the Uranium Enrichment Committee for details on the economics of the project.

CSO: 5100/7514



# NT WEIGHS MOVING UNTREATED URANIUM ORE FOR MILLING

Perth THE WEST AUSTRALIAN in English 6 Dec 82 p 41

[Text]

**DAEWIN:** The Northern Land Council is investigating the possibility of uranium ore being carried through the Kakadu national park in the Northern Territory.

The NLC has asked three experts to consider the feasibility of the untreated ore being carried more than 70 kilometres by road, slurry line or conveyor belt from the proposed Koongara uranium mine to a milling site.

The Canadian-owned Denison Mining Company has been negotiating for nearly two years to get the Koongara development off the ground.

Traditional owners recently voted to reject an application from Denison Mining to alter the boundaries of the Koongara lease area excised from the Kakadu national park to accommodate on-site milling of the ore.

## Investigate

They told the NLC to investigate the feasibility of remote milling of the uranium oxide.

However, remote milling is in conflict with Federal Government policy and is also not favoured by Denison Mining.

Mining officials said that a 70km sealed mine-haulage road could cost about \$300 million.

A slurry line or conveyor belt would be more expensive.

The officials said that the Federal Government had accepted Denison Mining's environmental-impact statement for the Koongara project, but a new study would have to be made if the remote milling concept was pursued.

Denison Mining had markets for its uranium, but they largely depended on a start being made on the mine site during the next dry season in the middle of next year.

CSO: 5100/7514

QUEENSLAND ALP OPPOSED TO URANIUM ENRICHMENT PLANT

Brisbane THE COURIER-MAIL in English 6 Dec 82 p 15

[Text] **THE Labor Party state council meeting in Brisbane yesterday decided to oppose establishment of a uranium enrichment plant in Queensland.**

ALP state secretary, Mr Peter Beattie, said the resolution received overwhelming support.

"Now South Australia has gone to Labor, Queensland, with the possible exception of Western Australia, is the only state where such a plant could be established," he said.

"A recent study suggested Caboolture, Beaudesert and Ipswich as possible sites for the plant.

Mr Beattie said Labor strongly opposed the plant because of the proven contribution of the nuclear power industry to the proliferation of nuclear weapons and the increased risk of nuclear war.

"I don't believe the State Government has looked at this properly," he said. "The plant has been suggested for highly populated areas.

"The problems of nuclear waste,

disposal have not been answered anywhere in the world."

Mr Beattie said Labor policy allowed the export of uranium to honor existing contracts, with certain safeguards.

Meanwhile Mr Beattie described a survey, quoted yesterday by the Welfare Minister, Mr White, as "absolute rubbish."

Mr White claimed more and more blue-collar workers, particularly those over 50, were deserting the Labor Party for the Liberals.

He claimed the ALP vote in Brisbane had dropped from 49.2 percent in March to 37 percent in November.

Mr Beattie challenged him to produce the survey to the Brisbane media. He said the latest Morgan poll showed the Liberal vote had fallen from 26.9 percent to 20 percent in Queensland.

# NUCLEAR FALLOUT SHELTER STUDY: 'FEW WOULD SURVIVE'

Canberra THE AUSTRALIAN in English 7 Dec 82 p 2

[Article by Danielle Robinson]

[Text]

THE four volunteers in Perth's nuclear fallout shelter experiment have shown so many bizarre reactions that psychologists are convinced that in real life few people would survive the holocaust trauma and emerge sane.

After just three days locked in the shelter, constructed by the Australian Broadcasting Commission in Perth, the volunteers were released yesterday, and immediately took a shower, fully clothed.

In another incident, the only male volunteer began saying that his skin could be changing color because of the lights in the mock shelter, and that someone brushing their teeth sounded like music.

The volunteers, one male and three females, all of different ages and backgrounds, were taking part in a psychological experiment to find out whether people can survive the trauma of life in a nuclear fallout shelter.

The project was sponsored by the University of Western Australia and the ABC.

The psychologist monitoring their progress, Professor Robin Winkler, wanted to pull them out of the shelter before schedule when the male volunteer began talking silently to himself.

Two of them began to panic in the early hours of the morning when they found out they had no control of the lighting.

Professor Winkler said.

## Obsessed

"They then fabricated a story about how the SEC must have put their fallout shelter onto a generator thus giving them no control."

From then on the male volunteer was obsessed with the lights, kept on talking about them, and believed they could change his skin color.

At one stage the volunteers heard things that weren't there and at other times they conducted unusual discussions on subjects such as spitting and what would happen if they chewed tea-leaves.

The volunteers said that when the shelter was finally opened they at first didn't want to come out.

Professor Winkler said: "If they had stayed there any longer their confusion and stress would have become far greater, and a series of crises would have emerged."

"While in the shelter they devised their own rules on what was normal or not, and were obsessed with their own restricted environment and having control over it."

"When they realised they had no control over their lights they panicked."

"Another factor which emerged was that they never felt the need to introduce each other or find out what each of them did on the outside."

# DEFENSE MINISTER ANNOUNCES RELAXED RULES FOR NUCLEAR SHIPS

Canberra THE AUSTRALIAN in English 9 Dec 82 p 1

[Article by William Pinwill]

[Text]

THE Federal Government has radically relaxed safety requirements covering visits by American nuclear-powered ships to Australian ports.

In a move designed to play on differences within the ALP over the issue, the Minister for Defence, Mr Sinclair, announced to Parliament yesterday that rigid conditions of entry established in 1978 had been replaced by a loose set of guiding principles.

A spokesman for the Victorian Premier, Mr Cain, said last night the State Government had not been consulted on the new guidelines. The Premier, who strongly opposes N-ship visits, would not comment until he had read Mr Sinclair's statement.

The NSW Premier and Federal ALP president, Mr Wran, also said he was unaware of the guideline changes.

The new guidelines cancel a ban on ships with more than one nuclear reactor, and permit visits by large US Navy warships such as Nimitz-class aircraft carriers.

With the exception of submarines, tugs need no longer be used for handling N-ships.

Existing arrangements for liability and indemnity in case of accident have been scrapped, and are replaced with a loose statement of intent.

## Regulations

There is no reference in the new conditions to the strict rules covering the operation of port safety organisations listed in the 1978 document.

A spokesman for Mr Sinclair

described the new conditions as "a policy statement basically designed to bring together in one piece of paper the Government's attitudes towards nuclear ship visits".

Mr Sinclair emphasised to Parliament that the new conditions of entry were "entirely consistent with the very high standards of safety that have always applied during visits by nuclear ships".

The Federal Opposition spokesman on defence, Mr Gordon Scholes, accused the Government of not caring about the safety of Australians living near navy ports.

"It seems to be an attempt by the Government to totally politicise the defence debate, and at the same time withhold as much information as possible from the public and the Parliament," he said.

Mr Scholes said he did not object to the admission of larger ships, but disputed Mr Sinclair's claim that tugs were not necessary for ships with more than one reactor.

The new rule on tugs seems designed in part to defeat black bans by tug operators imposed at Cockburn Sound, W.A. on nuclear ships berthing at HMAS Stirling.

On liability for accidental damage, the 1978 conditions stipulated the arrangements were "comparable with those given in the US standard statement".

The new code deletes this, saying only that "visits will be subject to satisfactory arrangements concerning liability and indemnity".

Asked where these "satisfactory arrangements" were codified, Mr Sinclair's spokesman said "there is no separate list, no definition of these arrangements".

### Omission

On safeguards, the previous conditions of entry specified that "a safety organisation meeting the requirements of Annex C must exist in the port being visited".

The annex devotes 15 paragraphs to standards covering the safety organisations.

The new guidelines omit this requirement, saying, "An operating safety organisation, competent to carry out a suitable radiation monitoring program and able to initiate reactions and provide services necessary to safeguard the public in the event of a release of radioactivity following an accident, must exist for the port being visited."

Mr Sinclair's spokesman said later, "In practice, Annex C to the old conditions still applies," and its omission from the new regulations was a move to simplify the code.

Mr Scholes said there was no justification for these omissions.

"The present arrangements between the states and the Federal Government for port safety are unclear, and these new guidelines only downgrade existing unsatisfactory safeguards."

CSO: 5100/7514

PROBLEMS PLAGUE NUCLEAR POWER PLANT CONSTRUCTION

WA201500 Bratislava PRAVDA in Slovak 8 Jan 83 p 2

[Text] Prague (from our editor Alfonz Bednaric) -- The progress of construction of our nuclear plants has been criticized in both the seventh plenum of the CPCZ Central Committee and in the joint Federal Assembly meeting. On the current state of affairs in Jaslovske Bohunice, Dukovany, and Mochovce we have been briefed by the deputy CSSR minister of fuel and energy, Ladislav Blazek, representative of the investor group, and general designer, as well as suppliers of construction labor and technological components for the power stations.

There is every indication that the first V-2 unit should undergo the initial trial run by 31 August of this year, and the first comprehensive testing should start by 31 December.

There is a certain, even if insufficient, improvement in the construction of the nuclear power plant in Dukovany, where a new organization method is beginning to show results. But the delays accumulated since the beginning of the construction will be difficult to overcome.

Concerning the construction of the nuclear power plant in Mochovce, the Vahostav employees, who were assigned the responsibility for a challenging task required by the unavoidable need to reinforce the seismic protection, have given a good account of themselves. They had to dynamite and clear up to 2.3 million cubic meters of stone to provide a stable rock foundation for the concrete base. Currently workers are assigned to the construction of a railroad siding from the Kalna station, rebuilding of needed road network, housing construction, and a dosimetric laboratory in Levice.

The concrete slab of the foundation of the first 440 mw unit of the nuclear power plant should start in the summer of this year and should be completed in about 64 months from the time the foundations are laid. Since the nuclear power plant in Mochovce will be the only one scheduled in the Eighth 5-Year Plan, the builders are taking every precaution to ensure on-time delivery of the scheduled electricity. For example, work will be accomplished in 10-day cycles in two extended 10 hour shifts in order to create the most favorable conditions for the suppliers of the technological components.

Even at the current stage of preparations for the construction of a nuclear power plant in Temelin, which is to have four 1000 mw units, there are signs of delay in the design preparations and in the evacuation of the construction site. From the information provided we can confirm that the problems in the construction of nuclear power plants are being solved, but not fast enough.

CSO: 5100/3011

URANIUM RESERVES SUFFICIENT TO WEATHER FURTHER BUDGET CUTS

Buenos Aires ENERGEIA in Spanish Dec 82 No 31 pp 760-761

[Article by Martin F. Yriart]

[Text] The year 1982 is ended and again Argentina's uranium reserves in the key category of "reasonably assured resources," as defined by the International Atomic Energy Agency, deducting what has been used, continues to hover in the area of 30,000 tons, a quantity considered sufficient to supply some eight nuclear power plants of 600 MW for a period of 30 years. The figure reached at the end of 1981 was 30,050 tons (as the content of yellow cake in the mineral, in the deposits).

At the close of this edition of ENERGEIA, the official figure for 1982 had not yet been released. Partial figures known throughout the year make it possible to estimate that the final amount will be about 30,350 tons of so-called reserves (that is to say, not yet mined), plus another 600 tons which have been mined and are now in storage, to be used in the production of concentrate in the next few months.

Despite delays by certain contractors, the production of concentrate has remained within the levels forecast, and the prospects for 1983 indicate that this trend will continue, despite the generally unfavorable conditions under which the country's economic activity is developing.

These conditions have been reflected in the difficulties experienced by the CNEA [National Atomic Energy Commission] in its plan to transfer the activities of exploration, exploitation and production at the uranium deposits to the private sector, and which already appear endemic. Nevertheless, by the end of November, an event of significant importance took place--namely, the startup of the Los Gigantes mining and manufacturing complex in Cordoba Province.

This is the first mining operation where an Argentine private firm is handling the entire cycle, from exploration to the production of uranium concentrate. The Schlaginweit deposit, in Los Gigantes District, had been explored by the CNEA, resulting in the certification of 1,300 tons of concentrate contained in 4.3 million tons of ore, with an average quality yield of 0.3 per thousand. According to the exploitation contract, the



contractor was obliged to carry out new explorations which would make it possible to expand the deposit's reserves to more than 1,500 tons, with even a moderate expectation of improving that result.

However, the amount already certified is sufficient to satisfy the 15 years of exploitation called for by the contract. The contracting firm has assumed the obligation of delivering an annual quantity of 100 tons of concentrate during that period. For this purpose, a production plant has been erected at the deposit site; the plant will use the process already successfully tried out by the CNEA with regard to other deposits in which it used trough leaching and extraction through resins of ionic exchange.

Thus, in the immediate future, the Los Gigantes production will complement that of San Rafael and Malargue for the provisioning of the following phase in the manufacturing of fuel. The lack of offers for the exploitation of the Sierra Pintada deposit, due partly to the present economic circumstances and partly to the logical uncertainties accompanying the phase of political transition the country is experiencing, requires a revamping of the implementation of the plans over the medium term.

If the difficulties in obtaining the help of private investment to expand the mineral reserves and concentrate production are prolonged, the CNEA has the alternative of repeating the strategy of transition applied in Malargue-San Rafael, proceeding with the exploitation of satellites or lesser deposits, until we begin to see the horizon and it is seen with some clarity what will be the political and economic rules of the game which will prevail in the country for the rest of the decade.

In this regard, various conditions are in the CNEA's favor. First is the continuity maintained throughout the past 30 years, whose positive results are evident. The second--a consequence of the first--is the unanimous favorable consensus the nuclear plan enjoys. Finally, we should note that the expansion of reserves and production are necessary but that the situation is not urgent: the technical resources and experience of the CNEA dispels all fear in this respect.

We might ask ourselves what influence factors foreign to the nuclear plan per se might have. We cannot ignore the interplay of interests, pressures and counterpressures being exercised in the petroleum, gas and hydroelectric energy sectors. At about the middle of the year, an offensive was launched by middlemen connected with these sectors to present the nuclear plan as a fierce generator of debts and a devourer of foreign exchange.

However, the truth is that the CNEA's annual budget has remained stable, and its level of indebtedness is compatible with the projects which the government has entrusted to its jurisdiction.

Due to inherent factors, the nuclear market in Argentina is presently exempt from the ruthless struggles for "territorial supremacy" which have characterized other sectors more eager for competition. Presumably, these factors will continue to play a part in the future, discouraging appetites and heavy hands.



Meanwhile, the year is ending with the startup of the first production line of uranium dioxide in Upper Cordoba with which the "uranium branch line" is completed in the process of manufacturing fuel. This line, built with the help of teams from the FRG, will have a guaranteed production capacity of 150 tons per year of dioxide powder of nuclear purity and ceramic properties.

At the same plant they are in the process of putting together a second line of national design and construction, with a capacity similar to the first line.

With regard to fuel production, it remains to complete the "zircaloy line" with which we are about to begin the manufacture of casings, and we are developing industrial technology for the production of zirconium sponge. With the completion of these phases, the manufacture of nuclear fuel in the country will be totally integrated, thus achieving the objective of self-sufficiency in this sector.

8568

CSO: 5100/2027

NUCLEAR COMMISSION 1983 ACTIVITIES VIEWED

PY141847 La Paz PRESENCIA in Spanish 23 Dec 82 p 9

[Text] In 1983, the Bolivian Nuclear Energy Commission [COBOEN] will give new impetus to nuclear research, announced Oscar Antonio Rondon Aramayo, director of that independent agency.

Summing up the prospective plans of that agency for the coming year, Aramayo told PRESENCIA that, on directives from mining authorities, "projects and activities will be restructured so as to have better results in 1983."

Aramayo stated: "We want to break away from the standstill caused by budgetary restraints and go after results which will be beneficial for the country." This implies a "serious evaluation" of the country's uranium deposits, as well as deposits of other radioactive minerals, such as thorium. Then he said: "Thorium might yet turn out to be more important than uranium. There will be important news regarding thorium in 5 years."

He went on to say that "guidelines for a policy on nuclear energy will be sought." To that end studies will be undertaken so that over the long term use can be made of both nuclear fission (nuclear reactors) and nuclear fusion, so as to contribute to a balanced use of the country's energy resources.

Aramayo added: "We intend to use all the infrastructure of COBOEN in a practical manner to carry out analyses of any kind of material and samples (agricultural, biological, mineral, metallurgical, industrial, etc.) by means of nuclear techniques."

He explained that nuclear techniques have the following advantages: 1) They are nondestructive; 2) they are highly precise and versatile and rapid; and 3) they will save foreign exchange because up until now such analyses have had to be ordered abroad.

Aramayo also announced that the radiological protection law, after its approval, will be put into force next year, thereby regulating the use of radiation in the country (both in research and in radiological centers).

The objective of that law is to regulate the use of radioactivity in the country and to create a specialized organ to enforce the law.

An inventory will be made in the near future of all radioactive sources in the country (radiological, medical, odontological, industrial research). An official announcement will be made in the next few days asking for those sources to be reported.

A check will be made later on the exposure doses affecting the operators and users of those sources. The same check will be made in radiotherapy centers.

The installation of a radiodosimetry laboratory is planned for 1984 to provide service nationwide.

The law will provide benefits for users, and sanctions for violators of its provisions.

The COBOEN director explained that in 1982 the projects and programs were affected by economic restrictions.

Last September, on government orders, the nuclear medicine center became subordinate to the Social Security and Public Health Ministry. Ten percent of the COBOEN budget was provided by that center, the other 90 percent came from the national treasury.

Aramayo mentioned some contracted projects such as the one on fertilizer optimization which is carried out jointly with the Bolivian Institute for Agricultural Technology (IBTA). This project is aimed at improving quinoa, potato and tarhui plantations in the highlands.

COBOEN and the San Andres University (UMSA) have been working together since 1982; COBOEN made analyses, allowed use of its installations, acted as consultant, assisted in bibliography. Aramayo said that COBOEN must have closer cooperation with UMSA, the Oruro University and enterprises such as Karachipama, La Palca and ENAF.

He concluded by saying that there have been talks with countries of the Cartagena Agreement Board (JUNAC) on the application of nuclear technology to the improvement of foodstuff in general.

Next January the Andean Pact will meet in Caracas where resources will be apportioned to each member country and other details will be worked out. The project on foodstuff within JUNAC should receive approximately \$5 million.

The JUNAC project calls for advanced training of personnel because it involves plague control, plant gene manipulation, etc. Various institutions of the country--IBTA, UMSA Ecology Institute and others--are expected to participate in the JUNAC project.

CSO: 5100/2032

REPORTAGE ON FEDERALIZING OF NUCLEAR RESEARCH ACTIVITIES

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 8 Jan 83 p 23

[Text] Physicist Jose Goldemberg commented yesterday in Sao Paulo on the recent presidential decree transferring control over all future nuclear research to the Federal Government through the National Nuclear Energy Commission [CNEN] and NUCLEBRAS [Brazilian Nuclear Corporations] or their subsidiaries. In his opinion--he said he was studying the full significance of the measure--the decree represents a "nationalization of nuclear research in Brazil to a degree never before experienced by us."

In the physicist's opinion, the decree will have the effect of inhibiting the development of research in the universities in areas at the forefront of nuclear physics, an example being nuclear fusion.

Other professors and physicists connected with the field of nuclear-energy research are concerned over the way in which enforcement of the presidential decree may be carried out. Shiguo Watanabi of the Physics Institute of the USP [Sao Paulo University] agrees with Prof Jose Goldemberg that the measure may bring Brazilian nuclear research to a level of development far below that which exists today, if not to total stagnation, "because of the restriction on work in the universities."

In the opinion of Roberto Hukai, adviser to the State Secretariat of Industry, Trade, Science, and Technology and former coordinator of the Nuclear and Energy Research Institute [IPEN], the decree is "disturbing because it is open to a wide range of interpretations." He says that the measure may turn out to be irrelevant--since the CNEN already has a monopoly on all radioactive material--but it may also be used as a weapon to control and restrict individual research in the universities.

He believes that if the government interprets the decree in that manner in practice, it will represent "a real disaster for Brazilian nuclear research, because that degree of control does not exist even in the USSR, where research is centralized." Another physicist connected with the IPEN's former management sees the decree as "a two-edged sword" and goes a little further than Roberto Hukai, with whom he agrees concerning the possibility of restrictions on scientific work: "This may put us in a situation resembling a real inquisition if they begin to prevent technicians from conducting a simple bibliographic survey of nuclear energy. Any new idea may be viewed as heresy."

In general, scientists said they were "taken by surprise," although the measure was expected by some, and they intend to look more thoroughly into the decree's specific consequences as far as Brazilian nuclear research is concerned.

#### Government Delayed Announcement

The decree by the president of the republic that was published in the DIÁRIO OFICIAL on 28 December restricts the carrying out of future research in the area of nuclear energy to the National Nuclear Energy Commission and NUCLEBRAS or their subsidiaries. It makes official what Federal and state officials had been repeatedly announcing unofficially and then denying since November.

The first reports concerning the federalization of the IPEN appeared in São Paulo on 17 November and were immediately confirmed by experts at the Ministry of Mines and Energy. On the day after the information appeared in the newspapers, Hernani Amorim, who was superintendent of the IPEN at the time, confirmed the report, and on the same day, it was denied by Osvaldo Palma, secretary of industry, trade, science, and technology. According to Palma, what existed was "a simple agreement" with the CNEN, which was going to assume all of the institute's financial obligations.

On 20 November, the CNEN and the state secretariat issued a joint note in the form of a paid announcement in which they also said that what had occurred was simply the signing of an agreement aimed at "overcoming difficulties of an institutional and financial nature that were preventing the recruitment and retention of highly specialized personnel as well as the upkeep of facilities and the efficient operation of its equipment." Nowhere did the note say that control of nuclear research would be assumed by the Federal Government. On the contrary, an attempt was made to deny that report by sticking strictly to the administrative issue.

The latest denial came 28 days before the presidential decree. Once again, Osvaldo Palma, accompanied this time by Rex Nazare Alves, chairman of the CNEN, denied that the activity was being federalized. Both men said that what was happening was "simply a transfer of the supervision of activities."

#### Figueiredo Orders "Exclusive Control"

Here is the complete text of the decree:

"Decree-Law No 1,982 dated 28 December 1982.

"Concerning the exercise of nuclear activities included in the Federal monopoly, the control of research in the area of nuclear energy, and other measures.

"The president of the republic, exercising the powers conferred on him by article 55, paragraph 1 of the Constitution, decrees the following:

"Article 1: The exercise of nuclear activities included in the monopoly established by article 1 of Law No 4,118 of 27 August 1962 is the exclusive right of the National Nuclear Energy Commission (CNEN) and the Brazilian Nuclear



Corporations (NUCLEBRAS) or their subsidiaries, except as provided by article 10 of Law No 6,189 of 16 December 1974.

"Article 2: The conducting of research in the field of nuclear energy is under the exclusive control of the Federal Government.

"Article 3: The conducting of research in the field of nuclear energy may take place through agreements signed with the CNEN, with NUCLEBRAS, or with their subsidiaries.

"Single paragraph: The activities covered by this article will be supervised and controlled by the CNEN, NUCLEBRAS, or their subsidiaries.

"Article 4: Any organization or entity established to conduct research in the field of nuclear energy as authorized by the executive branch is to be managed technically and administratively by the organizations referred to in article 1 of Law No 6,189 of 16 December 1974.

"Article 5: This decree-law takes effect on the date of its publication, and all previous provisions to the contrary are revoked.

"Brasilia, 28 December 1982, the 161st year of independence and the 94th year of the republic.

"Joao Figueiredo,  
"Cesar Cals Filho,  
"Danilo Venturini."

#### New IPEN Regulations Confirmed by Marin

The new regulations governing activities by the IPEN were established by Decree No 20,218 dated 22 December 1982, which was signed by Governor Jose Maria Marin and published in the DIARIO OFICIAL DO ESTADO DE SAO PAULO on 28 December. They became effective on that same date.

The regulations provide that the IPEN is a self-governing state entity with its own legal personality and assets and that it is attached to the State Secretariat of Industry, Trade, Science, and Technology, associated with Sao Paulo University for teaching purposes, and maintained and managed by the CNEN in accordance with the agreement signed between the state government and the CNEN on 1 November 1982. The single paragraph under article 1 also provides that the IPEN's activities are part of the National Nuclear Energy Program.

The CNEN's participation in the IPEN's administration is made very clear in article 6, which says that the institute will be managed by a higher council consisting of six members--one of whom will be its chairman--who will serve for 4 years. They will be appointed by the state governor on the advice of the chairman of the CNEN from a list of individuals nominated on triplicate lists submitted by the Secretariat of Industry and Trade, which will be represented by one member. The USP will be represented by two members, and the CNEN itself will also be represented by two members. The sixth member will represent the

FIESP [Sao Paulo State Federation of Industries]. Along with its other duties, the council will be responsible for "proposing to the chairman of the CNEN measures for implementing the CNEN's directives" and "ensuring that the directives and priorities established by the CNEN are carried out." The superintendency (the body that will oversee the institute) will also be headed by an individual appointed by the chairman of the CNEN under the provisions of article 13.

Articles 18 through 49 set forth the duties of the IPEN'S technical and administrative bodies. Most of those duties--even cleaning and janitorial services are included--are to be fulfilled "in accordance with CNEN standards," as is stipulated many times in the text of the regulations.

11798

CSO: 5100/2024

NOGUEIRA BATISTA RESIGNS AS NUCLEBRAS PRESIDENT

PY010245 Porto Alegre Radio Guaiba in Portuguese 0200 GMT 1 Feb 83

[Text] In a letter delivered personally to the mines and energy minister, Paulo Nogueira Batista has resigned as Nuclebras president. He claimed to be tired after 8 years as head of Nuclebras.

Experts of the energy sector have reported, however, that Nogueira Batista was forced to resign because the president of the republic was irritated by the fact that the Nuclebras nuclear plant building company, Nucon, had awarded the construction of the Iguape 1 and Iguape 2 nuclear plants to the Mendes Junior and Camargo Correia companies, without previously having called for public bids.

President Figueiredo ordered the suspension of the construction of the two nuclear plants in December last year.

CS0: 5100/2033



BRAZIL

ANGRA NUCLEAR PLANT CONSTRUCTION PUSHED BACK

PY201228 Rio de Janeiro JORNAL DO BRASIL in Portuguese 11 Jan 83 p 17

[Excerpt] The construction of the Angra II and Angra III nuclear plants will be delayed for 1 year in view of the small investments the government has allotted to the Brazilian nuclear program, a Mines and Energy Ministry source stated. The lack of resources for Nuclebras has already caused the president of the republic to postpone for an indefinite period the beginning of the construction of the Iguape-1 and Iguape-2 plants on the Sao Paulo coast.

The delay in the construction of the Angra II and Angra III nuclear plants was practically confirmed yesterday by an adviser of Mines and Energy Minister Cesar Cals on reporting that the resources allotted to Nuclebras this year "are not enough to do much." The investments approved by SEST (Special Secretariat for the Control of State Enterprises) for Nuclebras amount to 179 million cruzeiros, which represent a nominal increase of 37.69 percent and a real drop of 22 percent over the amount invested last year, which totaled 130 billion cruzeiros.

CSO: 5100/2028

# BUILDERS OF THREE NUCLEAR POWERPLANTS SELECTED

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 16 Dec 82 p 32

[Text] Rio de Janeiro--NUCLEBRAS [Brazilian Nuclear Corporations] awarded contracts yesterday for the construction of three new nuclear powerplants valued at \$9 billion. The winners were the Andrade Gutierrez Corporation, which will build Angra 3 in Angra dos Reis, and the Mendes Junior and Camargo Correa construction firms, which will form a consortium to build the civil works (including infrastructure) at Iguape 1 and 2 on the Sao Paulo coast.

NUCLEBRAS did not announce the cost of the three new nuclear units, but its chairman, Ambassador Paulo Nogueira Batista, said about a year ago that Angra 2 and 3 would cost approximately \$2.8 billion each. Considering international inflation and the financial cost of loans, a low estimate would be \$3 billion for each unit contracted for by NUCLEBRAS.

According to information provided by Cesarion Praxedes, NUCLEBRAS press officer, Brazil has still not signed the trade agreement with the FRG covering the construction of Iguape 1 and Iguape 2. According to recent statements by Wolfgang Breyer, spokesman for the KWU [Powerplant Union], Brazil's only contractual obligations with the FRG at present are the trade agreements for the construction of the Angra 2 and Angra 3 plants. All the other documents and protocols concerned with the nuclear program are diplomatic in character and are subject to negotiation. In short, they are documents of intention that need to be formalized in trade agreements.

## Accomplished Fact

When asked whether NUCLEBRAS was getting ahead of itself by formalizing the infrastructure and civil construction projects for Iguape 1 and Iguape 2, the NUCLEBRAS press officer said that "it is true that the trade agreement with the FRG has not yet been signed, but we must begin construction of the access structures: we must set up the worksites and begin building those plants because there is a nuclear program that must be carried out."

Cesarion Praxedes also said that NUCLEBRAS is a company for carrying out projects and that nuclear policy is determined by the government. He explained that the infrastructure and civil construction projects for a nuclear powerplant are estimated to account for between 10 and 12 percent of the project's total cost.

It can therefore be assumed that each award represents a contract for about \$300 million.

According to experts in the nuclear sector, NUCLEBRAS is again using the strategy of the "accomplished fact" by beginning the construction of infrastructure and civil construction projects before the Brazilian Government has even negotiated the trade agreements for Iguape 1 and Iguape 2 with the FRG. On that point, Cesarion Praxedes said that the infrastructure and civil construction projects will take a long time and that the trade agreement will be formalized in the interim.

Concerning the country's foreign exchange crisis and the difficulties involved in starting new projects, the press officer said that the projects might be postponed if necessary. He also said that the awarding of the contracts was delayed by 3 months and that NUCLEBRAS stipulated that the firm winning the contract for Angra 3 in Furnas would not be associated with Iguape. Because of that, the two other firms--Mendes Junior and Camargo Correia, which were in second and third place respectively--will form a consortium to build Iguape 1 and Iguape 2.

#### Powerplants

To build Angra 2 and Angra 3, Brazil obtained financing totaling \$1.7 billion. At the time, it was the biggest trade deal ever made by the FRG. A consortium of West German banks headed by the Dresden Bank and a consortium of European banks headed by the Luxembourg Banking Corporation are responsible for the financing.

Construction of Brazil's first nuclear powerplant--Angra 1--began in June 1974. It was financed by the Export-Import Bank, Morgan Guaranty Trust, and the Private Export Finance Corporation. Its cost was estimated by Furnas at \$1.5 billion. It was to have gone into operation in October 1981, but due to a defect in the steam refrigeration system, it will not begin operating until October 1983, according to Licinio Seabra, chairman of Furnas, and the result is a tremendous loss for the nation.

11798

CSO: 5100/2024

# INVESTMENT CUT TO DELAY NUCLEAR PLANT PROJECTS IN 1983

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 1 Jan 83 p 17

[Text] Brasilia--The real drop of 40.57 percent in investments by NUCLEBRAS [Brazilian Nuclear Corporations] will force the firm to delay its projects this year. The inevitable result will be a new postponement of the start of operations at the Angra 2, Angra 3, Iguape 1, and Iguape 2 nuclear powerplants. That information, which was provided by experts at the Ministry of Mines and Energy, is based on the fact that NUCLEBRAS has requested investments totaling 315 billion cruzeiros to keep its projects going at the same pace as in 1982, but it has received only 179.6 billion cruzeiros--a difference of over 136 billion cruzeiros.

The experts also said that funds that were to have gone to the nuclear powerplants are to be shifted to projects concerned with the nuclear fuel cycle, since the government regards that item in the Brazilian nuclear program as of great strategic importance for mastering the technology. The experts feel that as a result, the uranium enrichment plant in Resende, Rio de Janeiro will be inaugurated at the end of this year or early in 1984.

Minister Cesar Cals will meet with Delfim Netto, minister-chief of the Planning Secretariat of the Presidency, and Paulo Nogueira Batista, chairman of NUCLEBRAS, in an attempt to obtain more funds for the nuclear plants. The experts say that if he does not succeed, NUCLEBRAS will establish a new timetable for its projects and, consequently, reschedule the dates for putting the plants into operation.

According to "Plan 2000," a document that forecasts the generation and consumption of electric energy through the end of the century, Angra 2 and 3 would become operational in 1988 and 1989 respectively, while Iguape 1 and 2 would go into operation in 1991 and 1992. When "Plan 2000" was being prepared at the start of 1982, Angra 2 was rescheduled to begin generating power 1 year behind schedule. That delay also occurred because of the shortage of funds and the drop in electric energy consumption, which was on the order of 3 percent in 1981.

## Unemployment

According to the experts, the result of the cutback in investments by NUCLEBRAS and ELETROBRAS [Brazilian Electric Power Companies, Inc] will be massive unemployment, because there will also be a slowdown in hydroelectric projects--either

because those projects are about to be completed (Itaipu, for example) or because of the lack of funds. After recalling that over 15,000 workers were laid off at the Tucuruí project in Para in 1982, Dario Gomez, chef de cabinet in the Ministry of Mines and Energy, commented that "there will not be a Serra Pelada to solve the problem of unemployment for unskilled labor in 1983."

It is precisely because of the layoffs that will occur on the worksites that Minister Cals is trying to delay the closing of the Serra Pelada mines until the end of this year. He wants to prevent the 25,000 miners in Serra Pelada from becoming unemployed and looking in vain for work on the power industry's civil construction projects.

The ministry's experts also announced that Cals will not meet with the chairman of ELETROBRAS (General Costa Cavalcanti) and ELETRONORTE [Northern Electric Power Plants] (Douglas Souza Luz) to determine the pace of hydroelectric projects until he receives an official answer from Delfim Netto concerning his request for an increase in investments by those two firms.

11798

CSO: 5100/2024

## BRAZIL

### BRAZIL NOT AFFECTED BY CONTROL OF NUCLEAR EXPORTS

PY190208 Rio de Janeiro O GLOBO in Portuguese 4 Jan 83 p 18

[Text] Yesterday Paulo Nogueira Baptista, president of the Brazilian Nuclear Corporation [Nuclebras], stated that the Brazilian Nuclear program will not be affected by any list established to control the export of nuclear material and equipment. According to Nogueira Baptista these lists include those countries which import certain nuclear material without having signed any safeguard agreements.

The Nuclebras president stated that Brazil has already signed an agreement including safeguard clauses which the supplier country -- the FRG -- considers satisfactory.

Nogueira Baptista also recalled that the FRG has agreed to supply nuclear material to Brazil and that that supply is supervised by the International Atomic Energy Agency (IAEA), headquartered in Vienna.

He also pointed out that lists, such as the one being drawn up now, already exist and that they are reviewed periodically in order to include materials which, perhaps, are being imported and are not being covered by safeguards.

To manufacture an atomic bomb it is necessary to have uranium enriched to 90 percent and not to 3.2 percent such as the uranium which Brazil imports to feed its nuclear plants.

Therefore, Itamaraty diplomatic sources believe that the Brazilian nuclear program -- which has economic and not bellicose purposes -- will not be affected even if the United States and other countries which supply nuclear material stop exporting raw material and equipment which can be used for manufacturing atomic bombs.

The U.S. daily 'WASHINGTON POST' has disclosed that the United States and other countries which have signed the worldwide nuclear nonproliferation treaty are allegedly preparing a list of raw materials and equipment whose export would be strictly controlled because they are important elements for manufacturing an atomic bomb.

Itamaraty diplomats stated that it is very difficult to state the consequences this list will have for Brazil without having first seen it. However, the sources pointed out, if the only objective of restricting exports of materials is to prevent the manufacturing of an atomic bomb the list will not affect the Brazilian nuclear program.

CSO: 5100/2035

SHIP WITH URANIUM CONCENTRATES FROM ARGENTINA LEAVES SANTOS

PY190234 Rio de Janeiro 0 GLOBO in Portuguese 4 Jan 83 p 18

[Text] Santos (0 GLOBO)—The presence of six containers filled with uranium concentrates coming from Argentina and earmarked for the port of Geneva, Italy, aboard the Brazilian ship "Celina Torrealba," was denounced yesterday by the Santos Longshoremen's Union. The ship left this port yesterday afternoon, after a 2-day stopover. The report surprised Jose De Julio Rozental, director of the Department of Installations and Nuclear Material of the National Nuclear Energy Commission [CNEN] and physicist Ivan Moura Antunes, chief of the NUCLEBRAS [Brazilian Nuclear Corporation] technical safeguard advisory. Both Rozental and Moura Antunes went to Santos to hold a meeting with the union board to discuss the shipment of seven more containers with uranium concentrates produced in Brazil, and which have been scheduled for shipment this weekend.

Although they guaranteed that the product does not present any danger and expressing belief that the Argentine officials have met all the international requirements, the two technicians admitted that they were not aware of the shipment of the radioactive cargo through the Brazilian port.

It is a low radioactive material—Rozental stated—and this product is transported regularly throughout the world. Certainly the Argentine authorities have met all the international regulations and there are no problems at all. I am not aware of the transport of the Argentine uranium concentrates.

The six containers of uranium concentrates, better known as "yellow cake" [given in English], the raw material for the production of enriched uranium, were placed on the main deck of the "Celina Torrealba." The longshoremen recognized the load because of the presence of international seals for "radioactive freight."

CSO: 5100/2031



MA'ARIV QUESTIONS NUCLEAR POWER PROJECT

Tel Aviv MA'ARIV in Hebrew 12 Dec 82 p 5

[Editorial: "By Virtue of the Announcement"]

[Text] Energy Minister Yitzhaq Mordechai announced at the end of the past week that in 6 to 12 months Israeli scientists will begin to plan a nuclear power plant that will be largely produced locally. If this announcement is intended to praise Israeli's science and technology, it should be welcomed, but if it purports to be practical, that is, allocating a fortune next year to build a nuclear power plant, there are some serious questions to be asked.

The main question is not whether we can get the technical knowledge to build such a plant or protect the environment. It is a much simpler question: Will we need before the end of the century the additional electricity provided by a nuclear power plant?

Yosef Duriel, advisor to Minister Ya'akov Meridor, raised in recent months before the public the question of the surplus production of electricity. There is no doubt--as the electric company experts have agreed--that in recent years Israel's consumption of electricity rose at a smaller rate than that anticipated by the experts. This slowdown is the result of the absence of economic growth, negative immigration balance and, to a lesser degree, saving energy.

As a result of this slowdown the building of the second power plant operated with coal, the southern plant, can be postponed for 4 years without causing a catastrophe in the supply of electricity. The assumption is that if in the near future the two additional units in Hadera that work on coal are operated and by the end of the decade the plant in Ashkelon is completed--the government has just given to final go ahead--Israel's electric supply will be ensured until the year 2000.

It is true that in order to have additional electricity in 2000 we will have to begin in 1990 to build another power plant, whether operated by coal or by nuclear energy. So we still have 5 good years until we have to plan the plant to follow the one to be built in Ashkelon.



The postponement of the planning is worthwhile not only in order to save interest on the investment but also because each year there are new technologies in this area and we should take advantage of the world experiences that is being gained. Mostly we need a technological breakthrough in building nuclear power plants away from the sea. It is also possible that in the years ahead the political conditions that have prevented us from acquiring a ready-made plant will change.

If Moday's announcement is intended to let us know that a nuclear power plant will be built in place of the coal operated plant to be built in Ashkelon, even then it is unacceptable. First, because large sums of money have been spent in ordering equipment for that plant, and second, because coal is a cheaper source of producing electricity at this time than nuclear energy.

9565

CSO: 5100/4503

# FEASIBILITY OF NUCLEAR POWER DEBATED

Tel Aviv MA'ARIV in Hebrew 19 Dec 82 p 14

[Article by Avraham Peleg: "Israel's Nuclear Community Asks: Domestic Nuclear Power Plant--Technological Reality or Dream? Pessimism Regarding Attaining Nuclear Energy Before Middle of Next Decade; Doubts Whether We Will Have Nuclear Reactors in Operation before End of the Century"]

[Text] For at least another decade we will have to make do with electricity produced from coal and not from nuclear energy. If the nuclear freeze imposed on Israel continues, we may not have nuclear power plants before the end of the century.

This, at least, is the impression one gets from the discussions of the convention of the nuclear associations which convened last week at Tel Aviv University. The chairman of the associations, Prof Shim'on Yiftah, reported that there are at present 1,000 reactors in operation throughout the world, with an additional 300 being built. Energy Minister Yitzhaq Mordechai reported that Israel cannot at the present time acquire nuclear power plants in the world market.

Were we mistaken to detect a somber mood in the sessions? Uzi Elan, the director general of Israel's Nuclear Energy Commission, who conveyed his greetings at opening session, admitted that we are at an uncertain stage and that we may have to move "in a wide front." He did not elaborate.

Prof Yiftah mentioned the government plan to build 3-4 nuclear power plants by the end of the century, but there are huge difficulties in fulfilling this goal. The fact is, however, many countries around the world are building nuclear power plants. Latin America buys nuclear technology mainly from West Germany and Canada. One Latin American country, namely, Cuba, will receive nuclear reactors from the Soviet Union.

Egypt, Prof Yiftah added, is about to build two nuclear power plants, 950 megawatts each, to be completed in 1990. The technology and the equipment will be provided by France. This country is also building reactors in Turkey and Iraq.

Thus, anyone around the world who is able to do it builds nuclear power plants. Israel should do it too. The Horev commission, which reported the results of its study for the first time at the convention, recommends the purchase of nuclear reactors, with the first one to become operational in the next decade.

The commission chairman, Amos Horev, reported on the work of the commission and its conclusions. The commission had 14 members and did most of its work in subcommittees that looked into political aspects, manpower, materials, economic aspects and critical issues.

"The nuclear community in Israel," Horev pointed out, "is divided into two extreme viewpoints. One says that Israel can build its own nuclear reactor. The other says that this is not possible, and we need equipment and help from the outside."

The conclusion of the commission was that if we aim for the next decade (1992-1995) we have no choice but to buy reactors.

Horev reported that the purchase of a reactor would employ a large manpower--600 academicians, 650 engineers and technicians, 2,300 skilled workers, 450 planners, and an administrative staff of 90. "Our manpower is such," said Horev, "that we can tackle this program without hurting other large projects."

The question of a domestic reactor kept hovering over the discussion table, and Horev spoke about it. In his opinion, over a longer period of time and with larger investments we can build our own reactor. "If Israel can build the Kfir and the Merkava it can build a reactor. You don't have to make each component. You don't have to reinvent the wheel." But from what he and his commission said, it appears that at least in the coming decade an Israeli reactor is only a dream.

Minister Moday also spoke about the domestic reactor as he reacted to Horev's remarks. The minister said the matter has been looked into and there is no way at the present of acquiring reactors. At the same time, one should not refrain from beginning to develop a domestic reactor.

How as the nuclear project promoted during the past decade? The government decided in late 1973 to build a nuclear power plant in Israel, and gave the assignment to the electric company.

As a result, a supreme coordinating committee was established. An agreement was signed with the West Company, in order to provide two power reactors, each for 950 megawatts, provided the sale were approved by the U.S. Government.

A bid by the electric company for the supply of turbogenerators was agreed on, ways of protecting the plants against enemy attacks were studied, and a reasonable solution was found.

Electric company experts report that it was decided to build the nuclear plant not on the seashore but inland for the following reasons:

Although the site is far from the sea, the installation can be cooled by a new system of cooling towers (wet or dry).

After a survey the Halutza region (Mount Keren) was chosen because of safety reasons as well as geological considerations and environmental protection.

The place "is fit for a plant because the danger to the population in case of enemy attack is acceptable."

"After 5 years since the concerted effort in working of the nuclear project (that is, in 1977) there is an answer to all the basic questions related to the project. So that if we reach a political agreement the electric company will be able to use its technic and logistic power to advance the nuclear project," concludes the director of the planning division of the electric company, Mr M Katz. He adds, "We turn to the government--let us have a political agreement and we will build the nuclear plant."

It is easy to understand that more than any other technological project, the nuclear plant project has more than its share of political problems. Prof Yiftah reported in this respect Israel has proposed that the Middle East become a region free from nuclear weapons.

"During my last visit abroad," Yiftah added, "I was often asked, when will Israel begin to build its first nuclear plant? My answer was, we are waiting for the heat emanating from Lebanon to end."

There is no doubt that both the members of the nuclear community and the people in the energy ministry are grappling with the question of whether to build a domestic nuclear power plant or wait until the international market is opened to us and we may buy reactors.

9565

CSO: 5100/4503

# INDEPENDENT NUCLEAR POWER DEVELOPMENT SAID UNLIKELY

Tel Aviv HA'ARETZ in Hebrew 22 Dec 82 p 11

[Article by Mikhael Garti: "Israel's NPP Call"]

[Text] The nuclear power plants (NPP) were in the news last week. Science Minister Yuval Ne'eman and Energy Minister Yitzhak Mordechai announced before the meeting of the nuclear associations that they supported the building of nuclear plants in Israel to provide electricity. The report of the Horev Commission, which had spent over 2 years studying nuclear reactors, recommends changing to nuclear energy to provide electricity, and points out that it will be cheaper than coal. NPP seems to have wall-to-wall supporters, and all that is left to do is choose the right place and go to work.

But the statements and the recommendations remind us of the marriage arrangements between the village fool and the rich man's daughter: "He agrees," The groom (the nuclear community in Israel) announces his marriage, all he has to do is find out if the bride is agreeable, if indeed there is a bride.

## Solid Trap

The trap Israel is caught in is as solid as the concrete walls of the reactor itself. Despite President Nixon's promise in 1975 to sell Israel (and Egypt) a nuclear reactor, the sale of such reactor not only by the U.S. but by any of the 13 producing countries is now predicated on the signing of the agreement of nuclear non-proliferation. It seems to be a small concession. Does Israel intend to proliferate nuclear weapons? But in reality this is an impossible demand, since such an agreement means the supervision of all nuclear facilities in Israel. The decision that argues that Israel cannot accept the presence of foreign inspectors at the research facilities in Negev Soreq and Dimona was made by those who know what takes place there, and one cannot argue with it.

Since the acquisition by Israel of any reactor (not necessarily from the U.S.) is dependent on the signature, there is only one way out--build your own NPP. A seemingly simple solution. Just as the development of domestic sophisticated weapons was the result of the fear of an embargo on arms, the development of a domestic NPP can be the answer to an NPP embargo. But a close look at the Horev report shows that the statements about Israel's capability of building its own reactor are at best theoretical and uncertain.

Anyone who has ever seen a technical description of a cooling system valve in a NPP which covers dozens of pages and includes many drawings, will understand why nuclear reactors are produced only in a few countries in the world.

And even if we disregard the professionals who laugh at the idea of an Israeli reactor (they include some of the top nuclear experts in Israel), it is clear even to the most enthusiastic supporters of the idea that such a reactor will be far more expensive than any other alternative for producing electricity. The Horev Commission had good reasons for studying the economic aspects of a power plant that would be built "according to the purchasing conditions and the usual international agreements." Or in the words of the report itself:

"In light of the difficulties involved in self-development of nuclear power plants resulting from technological constraints, long timetable and uncertain rise in cost, financing and licensing, the commission recommends that the Government of Israel do everything within its powers to find ways to create the conditions necessary to reach an agreement with the producers of power reactors in order to build nuclear power plants."

A NPP is in the final analysis a plant for producing electricity. In light of the fact that coal operated plants are successful, one should look at the building of NPP in Israel as another economic venture and find the justification in the cost of electricity. According to the conclusions of the Horev Commission, which only dealt with a purchased reactor, the difference in the cost of electricity can fluctuate from a profit of \$5 billion (over 10 years of building and 20 years of operation) to a loss of nearly \$2 billion, all depending on the projections of the cost of the reactor (some \$2 billion), the rate of use of the facility, the cost of financing and the projected rise in cost of coal during the projected period. Again, no consideration has been given to a domestic reactor, both because of the uncertainty of the cost and because the commission did not determine that it can indeed be built.

#### Under the Table

One of the assumptions entertained by those in favor of self-building, like Prof Ne'eman, is that the slump experienced at present by the companies who build the reactors may help Israel to acquire the necessary components from those companies in "under and next to the table" deals. In such case, if indeed this is possible (and many doubt it), the domestic reactor will be a coverup for foreign components and knowhow purchased from various manufacturers without the knowledge of their governments under the claim that those parts are not exclusively used for nuclear reactors. But the idea of the outwardly domestic reactor is imaginary in view of some sections in the Horev report, including the section dealing with the acquisition of knowhow from foreign manufacturers. It says: "Attempts have been made to make contact with various bodies who have technological knowhow in the field of nuclear reactors, in order to legally obtain information from experienced manufacturers in regard to planning and production of parts and systems for power plants. These attempts have not been successful."



Thus, with the way to acquire reactors is blocked because of the unwillingness to sign the agreement and the way to make reactors locally is also blocked, if only because of the cost of such reactors, Energy Minister Mordechai has chosen a third, more circuitous road. Knowing that the process of building a power reactor takes 3 years and includes tests, finding a place and making technical decisions such as the type of nuclear fuel to be used, cooling system and the size of the unit, Mr Mordechai decided to begin the testing process by making a public announcement about his intention (the announcement was carefully worded and referred to making a decision within 6 months to 1 year). On the one hand, this approach will permit abandoning the building of an Israeli NPP if it turns out that the cost skyrockets. On the other hand, in view of the decline in orders of reactors from the big manufacturers, it is possible that the latter would put pressure on their own governments and the desired reactor will become available.

The Israeli NPP call is like shooting the ball from the far end of the court, and the chance of success appears slim. It is safe to assume that the only result will be a closer look at the technical questions which have not been studied by the Horev commission. Continuing to use coal does not seem to be such a problem. And if we consider the safety and security problems involved in building NPP, coal may be preferable. The Horev Commission, in any case, points out the problem of protecting a power plant from enemy attacks as something which requires thorough study in light of "the sharp turn of events resulting from the precedent of the bombing of the Iraqi nuclear reactor."

9565

CSO: 5100/4503

## BRIEFS

PROPOSAL FOR THORIUM REACTOR--Operating a nuclear power plant with thorium rather than enriched uranium has a distinct advantage, in that a liquid fuel like thorium does not produce plutonium which is used for making nuclear bombs. The use of thorium will reassure the world that Israel has no other intentions except to produce electricity in its nuclear plant, which may bring partial assistance from Western countries necessary for building Israel's first nuclear power plant. This is the opinion of Prof Amos Note'a, head of the division of nuclear engineering at the Technion, and Prof Yitzhaq Segal, a senior staff member of the division. This opinion was given after the announcement of Energy Minister Yitzhaq Mordechai that the first nuclear power plant to be built in Israel will use thorium rather than enriched uranium. Note'a and Segal pointed out in a talk with HA'ARETZ reporter that although the world has not yet produced a commercial thorium operated nuclear reactor, this is a proven technology that can be used in Israel. HA'ARETZ reporter adds that there are large deposits of thorium in Zaire and in India. [Text] [Tel Aviv HA'ARETZ in Hebrew 16 Dec 82 p 3] 9565

CSO: 5100/4503



MAHBUBUL HAQ CLARIFIES VIEWS ON NUCLEAR ENERGY

Islamabad THE MUSLIM in English 2 Jan 83 p 4

[Text]

Reference a letter by S. Ahmed in your Forum of December 31, 1982.

There appears to be some misunderstanding about the views I expressed in a Washington Seminar on the subject of nuclear energy which must be set right.

I had dramatised the economics of nuclear energy for Pakistan by pointing out that one kilowatt of nuclear energy would cost us one-third as much as energy from an oil-fired electric station. I argued that there was no reason why poor countries should deny themselves cheaper energy. No developed country had ever offered to pay us the difference in cost, yet they kept up their criticism of our nuclear energy programme which was unfair and unacceptable.

As a self-reliant, self-respecting sovereign nation, there is no question of Pakistan ever trading its

nuclear energy option for all the gold in the world. But instead of going on the defensive, I took the argument back to our critics which greatly silenced them and won a grudging admission that "the economics of nuclear energy in Pakistan is unassailable".

I firmly believe that it is the birthright of every developing nation to acquire nuclear energy and a mastery over its technology. No developing country can ever subscribe to the concept of "nuclear colonialism" whereby acquisition of this new technology is reserved for a fortunate few.

I am normally not in the habit of correcting published news stories. But since the subject is an important one, I did not want any misunderstandings to persist about my views. —MAHBUBUL HAQ, Deputy Chairman, Planning Commission, Islamabad.

CSO: 5100/4703

BIO-TECHNOLOGY INSTITUTE TO BE SET UP

Karachi DAWN in English 10 Jan 83 p 4

[Text]

FAISALABAD, Jan 9: The Chairman of the Pakistan Atomic Energy Commission, Dr Munir Ahmed Khan, disclosed here on Saturday that the Commission would establish a bio-technology institute with the assistance and collaboration of the United Nations International Development Organisation (UNIDO).

Inaugurating a 15-day training course of isotopic and biological nitrogen fixation at the Nuclear Institute of Biology here he said that "we can make the country self-inform the former about their latest research outcome

Dr Munir disclosed that the Federal Government was spending 351 million dollars on the import of fertilizers every year. Similarly, a sizeable foreign exchange was also being spent on the import of oil and

sufficient in various fields by applying the latest and modern equipment and technologies."

Dr Munir Ahmed Khan maintained that the use of bio-technology was an important factor and stressed upon the participate of the course to fully avail of this petroleum products. "If we are able to nourish the national bacteria in proper manner, we can minimize the use of fertilizer, he opined. He stressed upon the organizers of the course to impart practical know-how to the participants of the course about the proper use of fertilizers.

Earlier, Dr Mujtiba Naqvi, Director of the Nuclear Institute for Biology, informed the Chairman that this was the first training course in which eminent scientists from all over the country were participating.

CSO: 5100/4703

## SOUTH AFRICA

### BRIEFS

NUCLEAR SAFETY--A plea for public understanding of nuclear energy--and accepting that it is among the safest, cleanest and most environmentally favourable forms of energy yet used by man--was made in Pretoria yesterday. Addressing the "South African Energy in Perspective" conference, Dr J W L de Villiers, executive chairman of the Atomic Energy Corporation of SA, said emotive short-sightedness was torpedoing the use of nuclear energy. It could be that the technical community had failed by not communicating effectively with the general public. "The facts should speak for themselves," he said. "With more than 280 civilian nuclear power plants in operation for an average of more than 10 years--the first commercial plant in operation now for 25 years--not a single fatality has occurred which could be ascribed to the nuclear nature of the plants." [Text] [Johannesburg THE CITIZEN in English 25 Jan 83 p 10]

CSO: 5100/16

## SWEDEN LOADS FIRST SPENT NUCLEAR FUEL FOR SHIPMENT TO FRANCE

### Controversy on Ship's Safety

Stockholm DAGENS NYHETER in Swedish 23 Jan 83 p 5

[Article by Bo Engzell of DAGENS NYHETER's Scania office]

[Text] Barsebäck, Saturday [22 Jan 83]--The atomic waste carrier "Sigyn,"\* which has now been loaded in Barsebäck with the first Swedish nuclear fuel waste, will depart under armed escort, DAGENS NYHETER learns. First watched over by the Swedish coast guard during the trip to Ringhals and then by French patrol boats during the journey on international waters between Sweden and France, where the nuclear fuel is going.

Inasmuch as the "Sigyn" has been loaded with nuclear fuel, the vessel is under special "physical protection," as it is called. No outsider can go on board. Nobody may stop the vessel or jeopardize its security.

The authorities believe they know that certain actions are being prepared for, including one by the Danish part of the international environmental organization Greenpeace, whose vessel "Sirius" is expected here.

The "Sigyn" will leave Barsebäck as soon as possible. Perhaps as early as Sunday if the weather permits, and the vessel can be received in Ringhals. Everything depends in turn on when the French can allow the "Sigyn" to put in at Cherbourg. From there the waste will later be transported by road to the receiving station La Hague.

#### Rigorous

According to the special regulations prepared after the grounding of the "Sigyn" in the entrance to Barsebäck harbor, the vessel must not sail if the wind is over 10 meters per second.

On Saturday there were gusts up to 18-20 meters per second, but the wind abated in the afternoon. The meteorologists at Sturup predicted that the winds on

---

\*Sigyn, in Norse mythology, was Loki's wife.

Sunday would be about 10 meters per second or a little higher. It is conceivable that the wind will die down a bit on Monday.

While in Swedish waters the vessel will be watched over by the coast guard, which took part in security measures even when the "Sigyn" was docked at Landskrona.

#### Ready and Waiting

In international waters it is France that will take over the responsibility and the protection.

And the French took hold without gloves against the Greenpeace vessel "Sirius" when the environmental movement demonstrated at Cherbourg when Japanese nuclear fuel was landed there. The environmental movement's vessel "Sirius" was seized and "locked up."

"It is the French that have the responsibility for the 'Sigyn' during trips to France," says Bo Gustavsson of the Nuclear Energy Development Commission (SKBF). Gustavsson is responsible for the shipments of nuclear fuel.

"It is not at all impossible that French patrol boats will meet the 'Sigyn' in international waters..."

There are reports that French navy vessels are already waiting for the "Sigyn" in the North Sea.

#### Two Containers

Two heavy transport cans weighing 80 tons each were carried on board the "Sigyn" in Barsebäck harbor on Saturday. Each transport can or container holds 3 tons of rods of spent nuclear fuel.

Before the containers were driven aboard the "Sigyn"--the interior of the boat is reminiscent of an automobile ferry--and made fast, the containers had been dried. That went much faster than had been expected. In 20 hours instead of the 100 calculated.

The containers are sealed.

"The radiation measured is far below the permissible limit," says Sven Bergquist of Sydkraft [the South Swedish Power Company].

When the containers are emptied of nuclear fuel in France and reloaded on the "Sigyn" they will have been cleaned by vacuuming.

The "Sigyn," whose home port is now Cherbourg, will sail under the Swedish flag from 1985 on. Then the nuclear fuel storage at Simpevarp will be put into service and filled with atomic wastes. Only 10 percent of the spent Swedish nuclear fuel will go to France. The agreement with the French applies only to the 1980's.

The "Sigyn" will make six trips a year to France, says Bo Gustavsson at SKBF.

"Starting in 1985 the 'Sigyn' will make 15 to 20 trips in the Baltic Sea a year along the Swedish coast to Simpevarp.

Saturday's loading of spent Swedish nuclear fuel at Barsebäck was the first at that place.

But earlier, Swedish nuclear fuel was shipped abroad for several years from the Oskarshamn nuclear power plant. Both to France and to England.

That went on from 1975 to 1982. With the "Pool Fisher" and the "Bay Fisher." The "Bay Fisher" was a rebuilt East German vessel. The "Pool Fisher" sank in the English Channel after a collision. At the time, however, the vessel was not carrying a cargo of nuclear fuel. The "Fisher" boats were by no means new. Nor were they equipped with special safety devices like the "Sigyn."

"On 20-odd occasions 140 tons of spent Swedish nuclear fuel was shipped on the 'Fisher' boats through the Danish Great Belt. The Danish authorities were informed about every trip. No protests were heard at the time," says Bo Gustavsson of SKBF.

The "Sigyn" now goes through the Öresund to Ringhals. Then across the North Sea directly to Cherbourg. Thus not through the Danish Great Belt.

It is Öresund that is most dangerous, because of the dense ferry traffic crossing between Sweden and Denmark, according to the environmental movement Greenpeace in Denmark.

And now the Danish Ministry of Environment is also protesting and wants to have new talks with the Swedish government about the "Sigyn."

#### Denmark Agrees To Allow Passage

Stockholm DAGENS NYHETER in Swedish 23 Jan 83 p 11

[Text] Christian Christensen, Danish minister of environment, has accepted a proposal from Birgitta Dahl, Swedish minister of Energy, that the two should meet for talks. The chief question to be discussed is transport of spent nuclear fuel through Danish waters on the special vessel "Sigyn."

The exact time of the meeting will be determined when Birgitta Dahl returns from her visit to Nigeria. One possible time is during the session of the

Nordic Council in Oslo from 21 to 25 February.

The popular movement against nuclear power said in a statement Saturday [22 January 1983] that the government had used authoritarian methods and dictatorial language in pushing through the decision to let the special vessel "Sigyn" start its trip to France on Sunday.

The popular movement is demanding that the Swedish government immediately stop the shipment. The government must also, they say, investigate why the National Administration of Shipping and Navigation did not follow the recommendation of the Shipwreck and Salvage Commission concerning the "Sigyn's" maneuvering.

"The government must immediately state the real reason that the shipment of spent nuclear fuel to France must be carried out at the present accelerated rate."

'Shaky Agreement'

The popular movement also points out that the processing agreement is shaky and goes on to call attention to the Danish reaction.

"The Swedish government has clearly demonstrated, through a series of measures or failures to take measures, that it is completely uninterested in what the Danish government, the Danish Folketing, or a widespread Danish public opinion thinks about the 'Sigyn' case."

8815

CSO: 5100/2548



IAEA'S BLIX ON SAFEGUARDS, U.S. PARTICIPATION, FINANCES

Rotterdam NRC HANDELSBLAD in Dutch 13 Jan 83 p 7

[Interview with Hans Blix by An Salomonson: "United States Absence Creates Political Vacuum In Atom Bureau"]

[Text] IAEA Chief Blix wants money in exchange for safeguards. At the end of September the United States stopped its cooperation with the International Atomic Energy Agency (IAEA) after the annual meeting refused to accept Israel's credentials with 41 votes in favor and 40 votes against. It was the beginning of its most serious crisis since the IAEA was founded 25 years ago to let the human race be served by nuclear fission. The Swede Hans Blix who only a year ago followed his countryman Eklund up as director general, is now in big trouble. The United States pays 30 percent of the IAEA budget. For the last quarter of 1982 this would have been 8 million dollars, but it has not been paid. The political damage is even more serious. The United States was badly missed in the last meeting of the Board of Directors but also in the action committees for international plutonium storage (IPS) and nuclear world trade (CAS). These meetings of such fundamental importance for the fight against proliferation were almost paralyzed. About 20 Western nations including the Netherlands sent Blix a written complaint about the procedure used in the annual meeting. According to them the acceptance of credentials was abused for political tendencies in the Atomic Agency, which is actually a technical organization.

Question: As of 1 October 1982 the United States stopped its payments to the IAEA. How long can the IAEA continue to operate with 30 percent less in its budget?

Blix: For the immediate future we are not yet faced by a shortage of liquid assets. But the longer it lasts the more difficult it becomes. I fervently hope that the United States reconsiders its decision and resumes payments before drastic steps will have to be taken. However, irrespective of this problem, the U.S. Congress has just cut 4 and 1/2 million dollars from its contribution to the IAEA. That by itself would have meant a reduction in our activities.

Question: Can the IAEA effectively exist at all without cooperation of the United States?

Blix: Once upon a time the United States took the initiative in founding this bureau. As one of the member nations it was playing a distinctly political role. The governments of the member nations will have to get together to arrive at a solution. The situation would become very awkward if the United States delegation stayed away for a long period of time. It would lead to a political vacuum in the CAS and the Board of Directors, and all this is happening while the Board will have to discuss safeguards on 20 February, one of the most important and topical subjects.

Question: You sent the United States government a letter to stress the importance of participation in the IAEA, in particular at this point in time, and the fact that although Israel was punished it continues to be a member. Is a reconciliation in the offing, and is the IAEA willing to concede certain points to the United States?

Blix: In this letter I represent only myself, not the member nations. There is no conflict between the United States and the IAEA Secretariat. The IAEA is not a country by a club of nations with a common goal. The United States doubts if the cooperation, the technical cooperation in particular, is still good enough to achieve the goals. It considers the action concerning the Israeli credentials as extremely political.

What you term reconciliation is actually the question whether the United States considers it likely that a degree of cooperation with the other member nations, deemed necessary and useful, will still be feasible. I do believe that my letter made sense. I am very hopeful that the United States will be present in the Board of Directors on 20 February.

Intensive discussions are now in progress between a number of member nations and the United States.

Question: Will guarantees to prevent further abuse of credentials be needed in the future?

Blix: A majority of member nations believes that credentials are of political importance. I said in my speech before the UN Assembly that for a technical organization like ours it would be a good thing if the Assembly, as political forum, agreed on how credentials ought to be treated.

Question: In the same speech you also warned against additional attempts to make the IAEA a vehicle for the promotion of political causes. In your opinion, what can be done about this?

Blix: Most subjects are political in nature. Just think of the safeguards against proliferation. They were devised to foster political trust. The criticism of some member nations is directed at what they describe as the introduction of external matters. It is not my job to evaluate what is external and what not. I concentrate on positive points unrelated to politics which our agency can treat constructively: assistance to developing nations, storage of radio-active waste products, safety of nuclear reactors.

Question: The report on international plutonium storage, completed in November 1982, describes the alternatives for such facilities (in addition to the original compromise proposal a number of non-committed nations presented an alternate proposal with less stringent safety guarantees; then the Netherlands, Sweden, and Australia introduced a very stringent draft - Editor). What would you do to reach agreement?

Blix: I asked the panel of experts to finalize the report before 1983. It was clear that no progress could be made on a technical level. The report will be sent to the Board for a final decision. Another possibility would be appointing a Board committee to complete the matter on a political level.

Question: The discussions of the IPS have shown again that the differences between North and South are one of the most serious problems of the Atomic Agency. Can something be done about it?

Blix: In the annual meeting of 1981 serious conflicts indeed arose; appointing the director general, personnel management, and technical assistance were some of them.

The last annual meeting saw no clashes, not even about my appointment. Controversial subjects have lost some topical importance. Nevertheless, the developing nations feel that the technical assistance is insufficient. However, the IAEA shares this problem with other organizations. There is also criticism in the CAS but, in my opinion, it is not a conflict between North and South but between producers and importers of nuclear products.

Question: One of the conditions for your election to director general last year was the appointment to high positions of more representatives from developing nations. You have already appointed three new directors (the total number of director's positions is about 20 - Editor) from the Third World. Soon a new director for safeguards must be appointed, politically he will have an extremely delicate job. Are you again looking for a candidate from the Third World?

Blix: No, I intend to appoint somebody from a neutral country.

Question: Another condition of the developing countries for your appointment was more technical assistance for the Third World. Do you believe that, in view of the present recession, the industrialized nations will still be able and willing to do that?

Blix: In June 1982 the Board made its mind up for the next 3 years about how much the budgets will require. The figures represent a realistic increase, although the Third World expected even bigger increases.

Question: You have 3 more years to go. What are your priorities?

Blix: When I got here there was a lot of criticism about the safeguards. As a result of the rapid expansion of nuclear energy our personnel and technical inspection staffs were no longer adequate. I was able to partially wipe this

backlog out in the past year, and I hope of course to be able to complete the job. This expansion is naturally costing a lot of money.

I would like to point out that the Atom Bureau is doing a lot to combat proliferation, but it is up to the governments to see to it that all countries really take part in the fight. If concrete steps were finally taken to end vertical proliferation (the nuclear arms race between the super powers - Editor) it would undoubtedly be beneficial for the fight against horizontal proliferation (the spread of nuclear arms over even more countries - Editor).

For both the United States and the Soviet Union the economic burdens of the nuclear arms race are becoming an increasingly important argument to arrive at an agreement. Although we are here talking about two different areas, our experiences with safeguards can be very helpful. Verification is namely one of the big impediments standing in the way of such an agreement. Well, quite a while ago we already set up such a system of on the spot verification.

Another goal is the safety of nuclear power plants; the degree of safety is already very high but we want to improve it still more. We are now working on a system to report accidents. By pooling experiences everybody can learn. Every year a report on nuclear safety will be sent to the Board.

On request we will also despatch teams of experts to scrutinize the operational safety of installations in certain countries.

The following subject concerns radio-active waste. This year a conference on this subject will be held in Seattle. We should arrive at an international standardized system for the treatment of waste. We hope to provide the public with more confidence in nuclear energy.

Finally, one of our most important activities is technical assistance. A lot of developing countries are not yet prepared to have their own nuclear power plants. But that should not prevent them from taking advantage of nuclear technology for the treatment of diseases, locating water sources, sterilizing insects, just to mention a few examples. It will facilitate their development and make it cheaper. Moreover, it trains technical staffs in gaining understanding of the possibilities and problems of nuclear energy. We help more advanced developing nations with the selection of types and sizes of reactors, their safety, and the storage of their waste.

Question: In view of stagnating programs, the collapsing nuclear market, and growing public rejection what is your idea about further development of nuclear energy?

Blix: I am optimistic about such development because of the advantages for the environment. Ten years ago we, in Europe, were shaken up by the biological demise of our lakes as the result of acid rain. Nuclear energy is much less harmful for the environment than any other source of energy including hydro-electric power. As far as the last mentioned source of power is concerned, just take a look at the ecological consequences of the Aswan Dam. Coal and oil

are responsible for megatons of sulfurdioxide, heavy metals, and other pollutants in our environment. With nuclear energy there is no ecological damage, except in case of accidents. They could be very serious. That I admit. We are therefore constantly at work to increase safety.

Question: You talk as if the problem of radioactive waste has already been solved, as if we would not have to dump it in the ocean any more.

Blix: We really do not recommend such dumping. But we establish maximum limits for what can be dumped and where. According to a vast majority of experts adequate methods for the treatment of waste material are in existence. The Seattle conference will clear this up. The entire problem is more political than technical in nature. We have to show the people and the media that they are much better off with radio-active waste than with waste from other sources of energy.

10319

CSO: 5100/2546

END

**END OF**

**FICHE**

**DATE FILMED**

Feb 24, 1983